

CENTRAL INTELLIGENCE AGENCY

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COUNTRY USSR

SUBJECT Kharkov Tank Factory/Tank Engine Testing

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Plant No.75 had its own NKVD
 distinguish them from ordinary 50X1
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Plant No.75 had all types of lathes, brought from abroad. The whole plant was separated into numerous departments, the employees of which were not permitted to communicate. Each department was a secret to all other departments and the entrance to each department was guarded by police in plant uniforms. It was only through the common plant shop that everyone could pass. The plant had the following departments: Nos. 100, 200, 300, 400, 500, 600, 700, 800, 900, 1,000 and 1,100. Department No.800 - assembly of engines, and Department No. 900, testing shop, were merged and formed Department No. 900.

Every regular plant pass specified the department which the bearer could enter. The workmen employed in Department 900 were authorized to visit all the other departments, and had a corresponding notation on their passes. There were several gates at the main entrance to the plant, and every workman was carefully checked here. The plant police were armed with pistols and rifles. New employees had to surrender their personal passports and in exchange received plant passports, stating that their personal passports were being kept at plant No. 75. Night and day secret agents and policemen circulated in the neighborhood of the plant and stopped people on suspicion; if a person did not have his plant passport in his possession he was arrested.

Plant No.75 had 24 testing stations, placed in a row. Each station consisted of two sections. In the first section the engine was set up on a stand. In the second section were the instruments for testing the engine. The two sections were connected

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by a sound-proofed window, through which the working of the engine was observed. These were Diesel engines, 12 cylinder, V-shaped, using heavy fuel. The engines carried the designations V-2, V-2-V and V-2-K-V. Engines V-2 and V-2-V were almost identical.

6. The engines were of 400 to 450 horsepower, manufactured in series production. They were delivered from the assembly shop to the testing shop. The foreman on duty decided which station was to do the testing. The standard number of engines tested was 120 per month. Each station operated in four shifts of six hours each. If the norm of 120 engines tested during one month was exceeded, a bonus of one hundred rubles was paid to the four brigades for each engine tested in excess of the norm. Each testing station tested from 145 to 157 engines per month. Often, there were no engines to test and some of the testing stations remained idle.
7. The V-2 and V-2-V engines received at the testing shop were tested for six hours. The tests started at 800 revolutions per minute and reached 1300 revolutions, with five minutes at each stage in order to warm up the engine. The stages from 1300 to 1700 revolutions per minute lasted ten minutes each. Measurements were taken at the rated rotation speed of 1700 r p m with a load of 375 kilograms by means of hydraulic brakes at 400 h p and a metered supply of fuel.
8. A record was kept for each motor, showing every flaw in the engine and the process of its operation. The engines consumed 168 litres of gasoline per hour; the temperature of the water entering the motor was 65 degrees (Centigrade or Fahrenheit not known) and leaving 80 degrees; the temperature of the oil entering was 45 degrees, and leaving 55 degrees. Tests were made (a) at a minimum rate of 1850 r p m and a load of 400 kilograms by means of hydraulic brakes; (b) at a maximum rate of 1950 r p m with 450 kilograms; (c) without any load and with an unlimited supply of gasoline 2000 r p m during one minute to check the stability of the engine; and (d) while reducing speed to 100 r p m to check the stability of the engine.
9. Measurements of the exact number of r p m in order to check the stability of the engine were taken by means of manual speedometers manufactured in Sweden and in Switzerland. The Soviet speedometer of Dnepropetrovsk manufacture lacked stability in showing the number of revolutions, as the needle jumped in all directions and it was impossible to take an exact reading.
10. After the three-hour preliminary running the engine was subjected to a three-hour control test. This testing (six hours) did not require exactitude. All defects were noted on the record. While the engine was running every part was checked and remounted. After the six-hour test was completed, the engine was taken to the dismantling shop where all the parts were washed and the inner parts were checked. If it proved necessary to alter some detail, such as the cylinder, the connecting rod, the lower or upper crankcase, or the cylinder block, then the engine was sent back to the testing station for a three-hour "penalty" test, after which it was returned to the dismantling shop for washing and inspection, and finally returned again to the testing station for control tests.
11. The control tests lasted one and a half hours, one hour of which was used in preliminaries, warming up and testing at 1700, 1850 and 1950 r p m to determine the gas consumption and stability of the engine. The supervisor of the inspection shop carefully examined the engine before giving permission to subject it to the thirty-minute test. The supervisor reported to the chief military inspector of the plant, who personally checked and signed the documents on the acceptance of the engine.
12. Engine V-2-K, 600 h p, was tested in the same manner: 1700 r p m with a load of 400 kilograms, 1800 with 450 kilograms, 1950 with 550 kilograms. The consumption of fuel was 185 litres, and the maximum number of revolutions without load was 2200. This engine had some serious defects; the lower crankcases often cracked, the water and oil pumps and the fuel sprayer supplying gasoline to the cylinder broke down.

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Also, rather large tongues of flame spurted from the exhaust pipes, which was considered a serious fault (when the tank was in operation, the enemy could easily determine its location). These engines were manufactured in smaller quantities than the others.

13. Early in 1941 the management organized four new teams for Station No. 9; these teams were cleared by the Special Section of the plant and were assigned to the testing of a new model engine, equipped with a supercharger with additional air. The tests were supervised by two designers and a great many persons unknown to us. Entries in the record were strictly checked. The designation of the engine was not given in the record. This engine was of about 800 h p. It was impossible to determine the maximum speed because all the in-and out-going pipes were detached during the tests. The fuel pump and all fuel pipes were also detached and it was, therefore, impossible to determine the consumption of fuel, but it was over 200 litres per hour. The engine became very hot. After each short test the engine was taken away for an examination of its inner parts. 50X1
14. [redacted] Up to the beginning of World War II [redacted] had not obtained any results and the engine was taken to the Urals and construction workers were sent to erect plants there. 50X1
15. In wartime all kinds of small defects were acceptable, and the six-hour tests were shortened to three hours. In 1941 workmen began to dismantle the lathes and load them on railroad cars for removal to the Urals. However, German Intelligence found it out and bombed the trains and many of them were lost in transit.
16. The main office employed about 500 persons, including those who worked on the plant newspaper. The office was housed in a four-story building with antiaircraft guns on the roof. The testing and assembly shops had their own office in a two-story building; there were about 40 employees. The name of the shop supervisor was Korobov. The chief engineer was Malyshev; he had been decorated twice by the Red Army. During the war no record was kept of the number of engines tested. Plant No. 75 employed about 25 thousand persons. Next to the plant foundations were laid for an expansion of plant No. 75. During the evacuation the plant was destroyed by fire. The plant was built of cement and concrete; the entire roof was made of glass. Plant No. 183 was undamaged during the evacuation.

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ENCLOSURE (A): Sketch Showing Layout of the Kharkov Tank Factory

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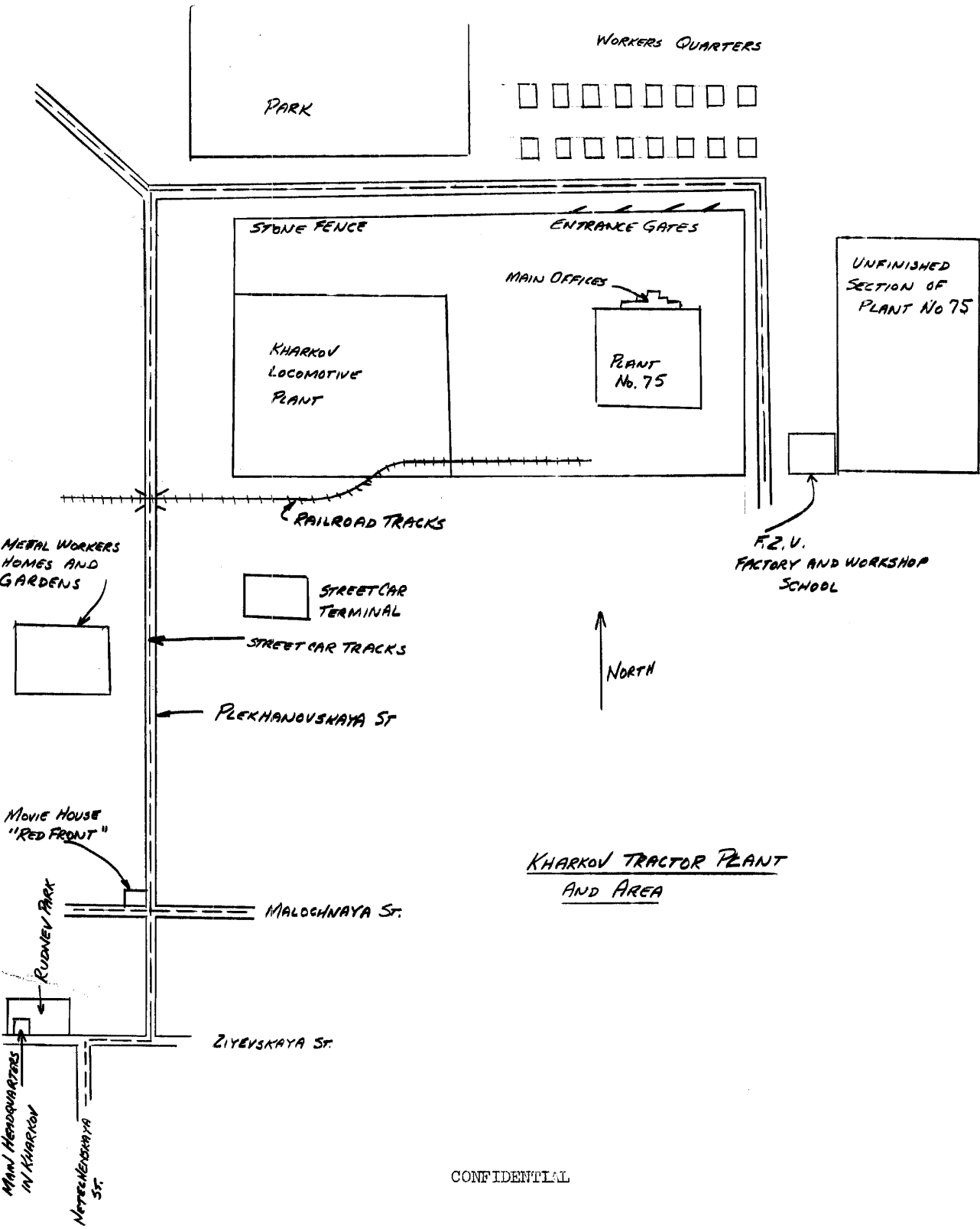
ENCLOSURE (A)

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SKETCH SHOWING LAYOUT OF THE KHARKOV TANK FACTORY

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